ABSTRACT

A ZrO_2-Al_2O_3 composite ceramic material having high mechanical strength and toughness as well as excellent wear resistance and hardness is provided. This ceramic material includes a first phase of ZrO_2 grains containing 10 to 12 mol% of CeO_2 as a stabilizer and having an average grain size of 0.1μm to 1μm, and a second phase of Al_2O_3 grains having an average grain size of 0.1 to 0.5 μm. The ceramic material has a mutual nano-composite structure formed under a condition that a content of the second phase in the ceramic material is within a range of 20 to 60 vol% such that the Al_2O_3 grains are dispersed within said ZrO_2 grains at a first dispersion ratio of 2% or more, and preferably 4% or more, which is defined as a ratio of the number of the Al_2O_3 grains dispersed within the ZrO_2 grains relative to the number of the entire Al_2O_3 grains dispersed in the ceramic material, and the ZrO_2 grains are dispersed within the Al_2O_3 grains at a second dispersion ratio of 1% or more, which is defined as a ratio of the number of the ZrO_2 grains dispersed within the Al_2O_3 grains relative to the number of the entire ZrO_2 grains dispersed in the ceramic material.